California Wildlife Habitat Relationships System
California Department of Fish and Game
California Interagency Wildlife Task Group

Juniper

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Vegetation

Structure-- Juniper habitats are characterized as woodlands of open to dense aggregations of junipers (California, Utah, or western) in the form of arborescent shrubs or small trees (Cheatham and Haller 1975, Küchler 1977, Vasek and Thorne 1977, Martin 1980, Paysen et al. 1980). Dispersion of junipers ranges from small clumps to widely scattered single plants (Dealy et al. 1978). Denser stands are commonly associated with a grassy understory; whereas, a shrub understory is found where junipers are more open (Vasek and Thorne 1977). Mature junipers range in height from 4.5 to 9 m (15 to 30 ft), rarely to 18 m (60 ft) and when fully crowned, usually have only a short (< 2.4 m (8 ft)) length of clear bole (Fowells 1965). Juniper densities have increased in the last century owing to heavy grazing and reduced fire (Martin 1980) .

Composition-- Soil depth and components (Hall 1978) and moisture (Dealy et al. 1978) influence the species and composition of plants in Juniper habitats. Associated species include white fir, Jeffrey, ponderosa, and whitebark pine, and singleleaf pinyon (Fowells 1965, Cheatham and Haller 1975, Vasek and Thorne 1977, Dealy et al. 1978, Martin 1980, Parker and Matyas 1981). Shrub species typically associated with juniper habitats include antelope bitterbrush, California buckwheat, wax currant, gray horsebrush, green Mormon-tea, curlleaf mountain-mahogany, and big and black sagebrush (Cheatham and Haller 1975, Küchler 1977, Vasek and Thorne 1977, Dealy et al. 1978, Hall 1978, Parker and Matyas 1981). Typical forbs and grasses include Sandberg's bluegrass, bighead clover, Idaho fescue, one-spike oatgrass, bottlebrush squirreltail, and bluebunch wheatgrass (Küchler 1977, Dealy et al. 1978, Hall 1978).

Other Classifications-- Other names for pinyon-juniper habitats include Juniper Savannah - 34, Juniper Shrub Savannah - 35 (Küchler 1977), Western Juniper - 238 (Martin 1980), Northern Juniper - 7.211 (Cheatham and Haller 1975), Western Juniper Series, and Juniper Series (Paysen et al. 1980, Parker and Matyas 1981). Other names for Pine-Juniper habitats may be applicable to some Juniper habitats, because juniper-dominated plant communities are often considered northwest extensions of the intermountain pinyon-juniper system (Billings 1952, Driscoll 1964, Cronquist et al. 1972).

Habitat Stages

Vegetation Changes-- 1;2-5:S-D. Following disturbance or invasion, Juniper habitats slowly proceed through succession. Most junipers occur as invader or successional components and may not be climax dominants (Dealy et al. 1978), although western juniper is thought to be a climax species (Martin 1980). Juniper berries are produced by young to mature trees (i.e., trees greater than 2 m (6.5 ft) in height), though often erratically (Maser and Gashwiler 1978). As trees become decadent, tops break and trunks and limbs become hollow (Maser and Gashwiler 1978). Young junipers are fire sensitive and find refuge from fire on rocky sites (Martin 1980).

Duration of Stages-- Junipers are relatively slow growing (Tueller and Clark 1975) and the successional sequence is relatively long. The time to proceed through stages is not known, but probably varies, depending on determinants such as moisture and soils. Western juniper may reach up to 1000 years of age (Fowells 1965).

Biological Setting

Habitat-- Juniper habitats generally occur at middle elevations forming a transition between habitats at higher elevations (e.g., Jeffrey Pine (JPN), Eastside Pine (EPN)), and habitats at lower elevations (e.g., Sagebrush (SGB)) . Pinyon-Juniper may be found at similar elevations in Inyo and Mono counties.

Wildlife Considerations-- Juniper berries are an important food source for wintering birds. Maser and Gashwiler (1978) found that 17 birds use juniper berries in winter. Juniper foliage is also consumed by several mammals (Maser and Gashwiler 1978) and may be an important food source for some of these animals, especially during harsh winters.

Physical Setting

Juniper habitats occur on virtually all exposures and slopes but are common on level to gently rolling topography (Dealy et al. 1978). Junipers may be found on soils ranging from rocky and well drained (Cheatham and Haller 1975, Parker and Matyas 1981) to drier or poorly drained (Cheatham and Haller 1975). Supporting soils may be from many parent materials; effective moisture is more important to junipers than soil type (Dealy et al. 1978). Climates within the range of Juniper habitats are semi-arid with hot, dry summers and cold winters (Fowells 1965). Temperatures range from summer highs of 40 C (105 F) with a mean July temperature of 19 C (66 F) to lowest winter lows of 37 C (36 F) (Fowells 1965). About 130 days per year are frost-free (Fowells 1965); generally, July and August are frost-free (U.S. Department of Agriculture 1941). Precipitation ranges from 25 to in excess of 51 cm (10 to 20 in) (U.S. Department of Agriculture 1941). About two-thirds of the precipitation falls in winter as snow (Fowells 1965); the remainder falls as rain in spring and fall (U.S. Department of Agriculture 1941). Aldon and Springfield (1973) and West et al. (1973) provide bibliographies that address biology and management of pinyon-juniper systems.

Distribution

Juniper habitats can be found from sea level to above 3050 m (10,000 ft), but maximum development is from 750 to 1500 m (2450 to 4900 ft) (Martin 1980). Slope aspect exerts a strong influence on the elevational distribution of junipers. On north-facing slopes, junipers range from 1220 to 1830 m (4000 to 6000 ft); whereas, on south-facing slopes, junipers range from 1830 to 2440 m (6000 to 8000 ft) (Cheatham and Haller 1975). The distribution of juniper habitats in California is roughly described by the range of western juniper (Griffin and Critchfield 1972) south to where pinyon pine becomes an important associate. This area includes northeastern California south and east to northern Inyo County.

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